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The main outstanding terms are the following:—

$$
\begin{aligned}
&+\{\overset{\prime\prime}{0{\cdot}0811}-\overset{\prime\prime}{0{\cdot}1578}=-\overset{\prime\prime}{0{\cdot}0767}\}\sin\{(10n''-6n'-3n^{\mathrm{iv}})\,t+10\epsilon''-6\epsilon'-3\epsilon^{\mathrm{iv}}-\varpi''\}\\
&-\{0{\cdot}0273-0{\cdot}0384=-0{\cdot}0111\}\sin\{(10n''-6n'-3n^{\mathrm{iv}})\,t+10\epsilon''-6\epsilon'-3\epsilon^{\mathrm{iv}}-\varpi'\}\\
&+\{0{\cdot}0080-0{\cdot}0171=-0{\cdot}0091\}\sin\{(10n''-6n'-3n^{\mathrm{iv}})\,t+10\epsilon''-6\epsilon'-3\epsilon^{\mathrm{iv}}+\varpi^{\mathrm{iv}}-2\varpi''\}.\\
&+\qquad\{-0{\cdot}0057\}\sin\{(10n''-6n'-3n^{\mathrm{iv}})\,t+10\epsilon''-6\epsilon'-3\epsilon^{\mathrm{iv}}+\varpi^{\mathrm{iv}}-\varpi''-\varpi'\}.
\end{aligned}
$$

There is a peculiarity about this term which I am in hopes of examining. According to Leverrier the mean motion of *Neptune* is equal to $7872''{\cdot}7$. Therefore the term just considered in the mean motion of the Earth will give rise to another term of the form

$$\{10n''-6n'-3n^{\mathrm{iv}}-n^{\mathrm{vii}}\},=-26''.$$

This will be a term independent of the eccentricities, and of the third power of the disturbing forces, and with an immensely long period of 50,000 years, or nearly twice the period of the revolution of the Earth's perihelion. It is therefore very probable that this term possesses a comparatively considerable coefficient. It is true, from its immense length of period, the term is without importance as far as tables of the position of the Earth is concerned, but it possesses a scientific interest. A slight change in the value of the mean motion of *Neptune* would convert this term into a secular term, by making

$$\{[10n''+2\varpi''-6n'-3n^{\mathrm{iv}}-n^{\mathrm{vii}}]\}=0.$$

My principal reason for communicating these results is to let it be known that they have been examined. Hansen calculated many terms of this nature in the theory of the Earth, but he has nowhere stated what terms he so examined. This is to be regretted, as it leaves this fruitless and laborious work to be performed again by anyone traversing the same ground. Similarly, had Hansen and Delaunay published a list of the terms produced by the planets in the motion of the Moon which they had examined, it would have materially lightened the labour of anyone endeavouring to discover the missing terms of long period in the motion of the Moon.

Oct. 29, 1877.

The Satellite of Neptune. By J. W. Ward, Belfast.

The following observations were all made without any knowledge of the position angles or distances by Ephemeris, which was *afterwards* consulted. On the whole I do not think that this satellite is more difficult than the two outer satellites of *Uranus* as observed in the spring of 1876. The points were glimpsed by averted vision.

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Telescope 4·3 in., Wray, power 175.

Date. 1877.	Local M.T. of Obs.	Estimated P. Angle.	P. Angle Ephem. at 11 hours G.M.T.	Dist. Ephem. at 11 hours G.M.T.	Estimated Dist.	
		°	°	″	″	
Oct. 16	± 12½ H.	± 75	86	7·45	± 10	Moonlight.
„ 17	11 „	45	44	16·7	15	do.
„ 27	12 „	170	194	10·5	10	Another point: P. 300°; D. 15″ ±
„ 29	12 „	40	40·2	17·0	15	
„ 30	11 „	350	10·6	9·8	10	
Nov. 6	11¼ „	240	241·9	11·4	10	

Coggia's Comet, 1877.

(*Communicated by Prof. Pritchard, University Observatory, Oxford.*)

From an observation at Marseilles, on September 14, and two others at Oxford on October 6 and 31, the following elements were computed:—

T	Sept. 11·40830 G.M.T.		
	°	′	″
π	107	37	41·2
☊	250	58	48·9
i	77	42	26·9
$\log q$	0·1977141		

Motion retrograde.

The middle observation is represented within the errors—

		″
C − O	$dl \cos b$	+ 7
	db	− 3

Ephemeris of Coggia's Comet for Greenwich Mean Midnight.

	R.A. h	m	s	N.P.D. °	′	log Δ
Nov. 12	6	5	45	73	10·8	9·9634
16	5	46	0	77	41·8	9·9562
20	5	25	56	82	20·6	9·9562
24	5	6	14	86	54·7	9·9636
28	4	47	23	91	12·1	9·9778
Dec. 2	4	29	49	95	3·9	9·9978
6	4	13	49	98	25·3	0·0220

The computations were made by Mr. W. Plummer.

Oxford, Nov. 9, 1877.

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